



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,859	01/24/2006	Makoto Funabiki	MAT-8809US	7945
23122	7590	07/29/2010	EXAMINER	
RATNERPRESTIA			ANWAR, MOHAMMAD S	
P.O. BOX 980			ART UNIT	
VALLEY FORGE, PA 19482			PAPER NUMBER	
			2463	
			MAIL DATE	
			DELIVERY MODE	
			07/20/2010	
			PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/565,859

**Applicant(s)**

FUNABIKI ET AL.

**Examiner**

MOHAMMAD ANWAR

**Art Unit**

2463

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/CD)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments, see Remarks, filed 4/12/10 with respect to the rejection(s) of claim(s) 1-34 under Office Action dated 1/13/10 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the amended claims.

***Claim Rejections - 35 USC § 103***

1. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 7, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al. (U. S. PGPub. No. 2003/0225892 A1) in view of Dommety (U.S. Patent No. 7,512,088 B1) and Funato et al. (U.S. PGPub. No. 2003/0087646).

**For claims 1, 7, 16 and 34**, Takusagawa disclose source access router apparatus and a destination access router apparatus (see Figure 1), comprising: determining, by the mobile communication apparatus, whether the source access router apparatus connected with the mobile communication apparatus complies with a Fast Mobile IP in which the source access router apparatus is configured to send a buffer notification to the destination access router apparatus for buffering data addressed to the mobile communication apparatus (see Figure 1 (8) buffer; para. 90); selectively operating, by the mobile communication apparatus, between or among a plurality of operating modes based on at least the determined compliance of the source access router apparatus with the Fast Mobile IP (See Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home agent for new router address refers to non-compliance); in a first one of the operating modes, when the mobile communication apparatus determines that the source access router apparatus does not comply with the fast mobile IP (see para.54, does not comply with Fast mobile IP and the access router information is handled by home agent) ; the mobile communication apparatus requests information to a home agent apparatus on the destination access router apparatus, the home agent apparatus responds to the request, providing information on the destination access router apparatus to the mobile communication apparatus (see para. 54, router address is

assigned by CN or home agent), and the mobile communication apparatus instructs the home agent apparatus to forward data addressed to the mobile communication apparatus to the destination access router apparatus (see para. 120). Takusagawa et al. disclose all the subject matter but fails to mention explicitly the mobile communication apparatus requests information to a home agent apparatus on the destination access router apparatus, the home agent apparatus responds to the request, providing information on the destination access router apparatus to the mobile communication apparatus. However, Dommety from a similar field of endeavor disclose the mobile communication apparatus requests information to a home agent apparatus on the destination access router apparatus, the home agent apparatus responds to the request, providing information on the destination access router apparatus to the mobile communication apparatus (see column 4 lines 28-35, a mobile node receiving the address through home agent). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Dommety addressing scheme into Takusagawa et al. IP scheme. The method can be implemented in a wireless network. The motivation of doing this is to expedite routing data packets (see column 1 lines 19-23). Takusagawa et al. and Dommety disclose all the subject matter but fails to mention in a second one of the operating modes, the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure. However, Funato et al. from a similar field of endeavor disclose in a second one of the operating modes, the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure (see

paragraph 59-61). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Funato et al. mobile IP implementation scheme into Takusagawa et al. and Dommety. fast mobile IP scheme. The method can be implemented through messaging. The motivation of doing this is to discover mobile routers (see paragraph 2).

**For claims 14 and 15**, Takusagawa et al. discloses comprising a network having plural sub-networks (see Figure 1), access router apparatus connected to the sub-networks (see Figure 1, old AR, new AR) a mobile communication apparatus (see Figure 1, MN) making packet-communications with the network through the access router apparatus, in which the access router apparatus which comply with a Fast Mobile IP are intermixed with those which do not comply with the Fast Mobile IP (see Figure 1, MN), wherein the mobile communication apparatus has a function of determining whether the source access router apparatus complies with the Fast Mobile IP in which the source access router apparatus is configured to send a buffer notification to a destination access router apparatus for buffering data addressed to the mobile communication apparatus (see Figure 1 (8) buffer; para. 90), and selectively operates between or among a plurality of operating modes based on at least the determined compliance of a source access router apparatus with the Fast Mobile IP apparatus (See Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home agent for new router address); a home agent apparatus connected to the network which implements mobile management of the mobile communication apparatus moving between the sub-

networks (see para. 43); and at least one correspondent node connected to the network, which makes communication with the mobile communication apparatus (see para. 120); and in a second one of the operating modes, if the mobile communication apparatus determines that the source access router apparatus does not comply with the Fast Mobile IP, the mobile communication apparatus requests information to the home agent apparatus for information on the destination access router apparatus, the home agent apparatus provides the information on the destination access router apparatus to the mobile communication apparatus in response to the request (see para.54, does not comply with Fast mobile IP and the access router information is handled by home agent), and the mobile communication apparatus instructs the home agent apparatus to forward data addressed to the mobile communication apparatus to the movement destination access router apparatus (see para. 120). Takusagawa et al. disclose all the subject matter but fails to mention explicitly the mobile communication apparatus requests information to a home agent apparatus on the destination access router apparatus, the home agent apparatus responds to the request, providing information on the destination access router apparatus to the mobile communication apparatus. However, Dommety from a similar field of endeavor disclose the mobile communication apparatus requests information to a home agent apparatus on the destination access router apparatus, the home agent apparatus responds to the request, providing information on the destination access router apparatus to the mobile communication apparatus (see column 4 lines 28-35, a mobile node receiving the address through home agent). Thus, it would have been obvious to one ordinary skill in the art at the

time of invention was made to include Dommety addressing scheme into Takusagawa et al. IP scheme. The method can be implemented in a wireless network. The motivation of doing this is to expedite routing data packets (see column 1 lines 19-23). Takusagawa et al. and Dommety disclose all the subject matter but fails to mention in a second one of the operating modes, the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure. However, Funato et al. from a similar field of endeavor disclose in a second one of the operating modes, the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure (see paragraph 59-61). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Funato et al. mobile IP implementation scheme into Takusagawa et al. and Dommety fast mobile IP scheme. The method can be implemented through messaging. The motivation of doing this is to discover mobile routers (see paragraph 2).

**For claims 18 & 19 & 20,** Takusagawa et al. disclose wherein if the Fast Mobile IP compliance determining part determines that access router apparatus does not comply with Fast Mobile IP (see para.54, does not comply with Fast mobile IP and the access router information is handled by home agent), the Fast Mobile IP control part gives identifying information of the destination access router apparatus to the home agent apparatus or an access router information server apparatus and controls the mobile IP/Fast Mobile IP processing part so as to request information on the access router (see para. 54, router address is assigned by CN or home agent).



4. Claims 2-5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al. in view of Dommety and Funato et al. as applied to claim 1 above, and further in view of Kim (U.S. Patent No. 7,116,654 B2).

**For claim 2**, Takusagawa et al., Dommety and Funato et al. disclose all the subject matter but fails to mention wherein the home agent apparatus stores information on access router apparatus and searches and gives information on the destination access router apparatus in accordance with the request by the mobile communication apparatus. However, Kim from a similar field of endeavor discloses wherein the home agent apparatus stores information on access router apparatus (see column 2 lines 51-55) and searches and gives information on the destination access router apparatus in accordance with the request by the mobile communication apparatus (see column 2 lines 55-60). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Kim storing scheme into Takusagawa et al., Dommety and Funato et al. mobile IP scheme. The method can be implemented in a home agent. The motivation of doing this is to increase performance in wireless link (see column 2 lines 11-14).

**For claim 3**, Takusagawa et al., Dommety and Funato et al. disclose all the subject matter but fails to mention wherein the home agent apparatus makes inquiries about information on the destination access router apparatus to an access router information server apparatus storing information on access router apparatus, in accordance with the request by the mobile communication apparatus, and gives the

information to the mobile communication apparatus. However, Kim from a similar field of endeavor discloses wherein the home agent apparatus makes inquiries about information on the destination access router apparatus to an access router information server apparatus storing information on access router apparatus, in accordance with the request by the mobile communication apparatus, and gives the information to the mobile communication apparatus (see column 2 lines 53-60). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Kim storing scheme into Takusagawa et al., Dommety and Funato et al. mobile IP scheme. The method can be implemented in a home agent. The motivation of doing this is to increase performance in wireless link (see column 2 lines 11-14).

**For claims 4 and 5**, Takusagawa et al., Dommety and Funato et al. disclose all the subject matter but fails to mention wherein the mobile communication apparatus notifies the home agent apparatus of an identifier tag of the destination access router apparatus, and the home agent apparatus searches or inquires about information on the destination access router apparatus based on the identifier tag; wherein the identifier tag of the destination access router is either a lower layer address or a cell station ID. However, Kim from a similar field of endeavor disclose wherein the mobile communication apparatus notifies the home agent apparatus of an identifier tag of the destination access router apparatus, and the home agent apparatus searches or inquires about information on the destination access router apparatus based on the identifier tag (see column 8 lines 10-17); wherein the identifier tag of the destination access router is either a lower layer address or a cell station ID (see column 8 lines 14-

15). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Kim storing scheme into Takusagawa et al., Dommety and Funato et al. mobile IP scheme. The method can be implemented in a home agent. The motivation of doing this is to increase performance in wireless link (see column 2 lines 11-14).

**For claim 17**, Takusagawa et al., Dommety and Funato et al. disclose wherein information on the access router apparatus is acquired from the home agent apparatus which manages movements of the mobile communication apparatus between sub-networks or from the access router apparatus. However, Kim from a similar field of endeavor disclose wherein information on the access router apparatus is acquired from the home agent apparatus which manages movements of the mobile communication apparatus between sub-networks or from the access router apparatus (see column 2 lines 51-55). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Kim storing scheme into Takusagawa et al., Dommety and Funato et al. mobile IP scheme. The method can be implemented in a home agent. The motivation of doing this is to increase performance in wireless link (see column 2 lines 11-14).

5. Claims 6, 8-10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al., Dommety and Funato et al. as applied to claims 1 and 16 above, and further in view of Leung (U.S. Patent No. 6,636,498 B1).

**For claim 6**, Takusagawa et al., Dommety & Funato et al. disclose all the subject matter but fails to mention a step in which when the home agent apparatus could not acquire information on the destination access router apparatus, the home agent apparatus notifies the mobile communication apparatus accordingly. However, Leung from a similar field of endeavor discloses a step in which when the home agent apparatus could not acquire information on the access router apparatus (see column 15 lines 25-27), the home agent apparatus notifies the mobile communication apparatus accordingly (see column 15 lines 36-38). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung acquiring scheme into Takusagawa et al., Dommety and Funato et al. mobile IP routing scheme. The method can be implemented in the hardware and software. The motivation of doing this is to acquire and notify router information in a timely manner.

**For claim 8**, Takusagawa et al. disclose when the mobile communication apparatus determines that the source access router apparatus does not comply with the Fast Mobile IP (See Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home agent for new router address refers to non-compliance), and the destination access router apparatus complies with Fast Mobile IP (see Figure 1, buffer); the mobile communication apparatus instructs the home agent apparatus to forward data addressed to the mobile communication apparatus to the destination access router apparatus (see para. 120). Takusagawa et al., Funato et al. and Dommety disclose all the subject matter but fails to mention establishing by the home agent apparatus a

tunnel between the home agent and the destination access router apparatus and notifying the establishment thereof apparatus to the mobile communication apparatus; receiving by the destination access router apparatus via the tunnel data addressed to the mobile communication apparatus and forwarding the data to the mobile communication apparatus. However, Leung from a similar field of endeavor discloses establishing the home agent apparatus a tunnel between the home agent apparatus and the destination access router apparatus and notifying the establishment thereof to the mobile communication apparatus (see column 15 lines 36-38); receiving by the destination access router apparatus via the tunnel data addressed to the mobile communication apparatus and forwards the data to the mobile communication apparatus (see column 15 lines 38-47). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung tunneling scheme into Takusagawa et al., Funato et al. and Dommety mobile IP routing and compliance scheme. The method can be implemented in the hardware and software. The motivation of doing this is to expedite data transfer.

**For claim 9**, Takusagawa et al. disclose when the mobile communication apparatus determines that the source access router apparatus complies with the Fast Mobile IP (See Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home agent for new router address refers to non-compliance) and the destination access router apparatus does not comply with Fast Mobile IP (See Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home

agent for new router address refers to non-compliance); instructing by the mobile communication apparatus, source access router apparatus to forward data addressed to the mobile communication apparatus to the home agent apparatus (see para. 54). Takusagawa et al., Funato et al. and Dommety disclose all the subject matter but fails to mention establishing by the access router apparatus a second tunnel between the source access router apparatus and the home agent apparatus and notifying the establishment thereof to the mobile communication apparatus; and forwarding by the home agent apparatus data addressed to the mobile communication apparatus received via the second tunnel to the mobile communication apparatus. However, Leung from a similar field of endeavor discloses establishing by the access router apparatus a second tunnel between the source access router apparatus and the home agent apparatus and notifying the establishment thereof to the mobile communication apparatus (see column 15 lines 36-38); and forwarding by the home agent apparatus data addressed to the mobile communication apparatus received via the second tunnel to the mobile communication apparatus (see column 15 lines 38-47). Thus it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung tunneling scheme into Takusagawa et al., Dommety & Funato et al. mobile IP routing and compliance scheme. The method can be implemented in the hardware and software. The motivation of doing this is to expedite routing packet from one region to another.

**For claims 10 & 21**, Takusagawa et al., Dommety & Funato et al. discloses all the subject matter but fails to mention wherein an instruction given by the mobile communication apparatus with respect to the source access router apparatus is one in

which an address of the home agent apparatus is written in a new care-of address field of a fast binding update message according to a Fast Mobile IP procedure. However, Leung from a similar field of endeavor discloses wherein the instruction given by the mobile communication apparatus with respect to the pre-movement source access router apparatus is one in which the address of the home agent apparatus is written in the new care-of address field of a fast binding update message according to a Fast Mobile IP procedure (see column 5 lines 49-53). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung binding scheme into Takusagawa et al., Dommety & Funato et al. mobile IP routing scheme. The method can be implemented in the hardware and software. The motivation of doing this is to provide a proper addressing scheme for routing packet from one region to another.

6. Claims 11, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al., Dommety, Funato et al. and Leung as applied to claims 1, 8, 9 above, and further in view of Shimizu et al. (U.S. PGPub. No. 2002/0045450 A1).

**For claims 11, 30 and 31**, Takusagawa et al., Dommety, Funato et al. and Leung disclose all the subject matter but fails to mention starting, by the home agent apparatus, buffering in a case that buffering is possible when the home agent apparatus receives an instruction from the source access router apparatus for buffering transmission data addressed to the mobile communication apparatus. However,

Shimizu et al. from a similar field of endeavor disclose starting, by the home agent apparatus, buffering in a case that buffering is possible when the home agent apparatus receives an instruction from the source access router apparatus for buffering transmission data addressed to the mobile communication apparatus (see Figure 11, para. 53). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Shimizu et al. buffering scheme into Takusagawa et al., Dommety, Funato et al. and Leung handover scheme. The method can be implemented in a home agent device. The motivation of doing this is to avoid packet loss.

7. Claims 12, 13 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al., in view of Dommety, Funato et al., Leung and Shimizu et al. as applied to claims 1, 8, 9, 11 and 30 above, and further in view of Okajima et al. (U.S. PGPub. No. 2004/0114554).

**For claim 12,** Takusagawa et al., Dommety, Funato et al., Leung and Shimizu et al. disclose all the subject matter but fails to mention notifying by the home agent apparatus to start buffering to the source access router apparatus. However, Okajima et al. from a similar field of endeavor discloses notifying by the home agent apparatus to start buffering to the source access router apparatus (see paragraph 19 lines 26--29). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Okajima et al. buffering scheme into Takusagawa et al., Dommety, Funato et al., Leung and Shimizu et al. mobile IP routing, compliance and binding



scheme. The method can be implemented in the hardware. The motivation of doing this is to avoid packet loss.

**For claim 13,** Takusagawa et al., Dommety, Funato et al., Leung and Shimizu et al. disclose all the subject matter but fails to mention wherein in a case that the buffering is impossible, notifying the home agent apparatus, the source access router apparatus that buffering cannot be executed. However Okajima et al. from a similar field of endeavor discloses wherein in a case that the buffering is impossible (paragraph 19 lines 10-20), notifying the home agent apparatus, the source access router apparatus that buffering cannot be executed (paragraph 19 line 3, paragraph 214 lines 8-21). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Okajima et al. buffering scheme into Takusagawa et al., Dommety, Funato et al., Leung and Shimizu et al. mobile IP routing, compliance and binding scheme. The method can be implemented in the hardware. The motivation of doing this is to avoid packet loss.

**For claim 32,** Takusagawa et al., Dommety, Funato et al., Okajimi et al. and Shimizu et al. disclose all the subject matter but fails to mention wherein a tunnel is established in the data transmission between the home agent apparatus and the buffer node or the data transmission between the buffer node and the mobile communication apparatus or both. However, Leung from a similar field of endeavor discloses wherein a tunnel is established in the data transmission between the home agent apparatus and the buffer node or the data transmission between the buffer node and the mobile communication apparatus or both (see column 15 lines 38-47). Thus, it would have

been obvious to one ordinary skill in the art at the time invention was made to include Leung tunneling scheme into Takusagawa et al., Dommety, Funato et al., Okajimi et al. and Shimizu et al. mobile IP routing and compliance scheme. The method can be implemented in the hardware and software. The motivation of doing this is to expedite data transfer.

8. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 7,116,654 B2) in view of Funato et al. (U.S. PGPub. No. 2003/0087646) and Leung (U.S. Patent No. 6,636,498 B1).

**For claim 28**, Kim discloses the access router information server apparatus comprising: an access router information list in which identifier tags of access router apparatus, IP addresses of the access router apparatus and the apparatus and a compliance/noncompliance with a Fast Mobile IP of the access router apparatus are written (see (see column 2 lines 51-55)); a receiving part for receiving requests for information on the access router apparatus from various kinds of apparatus on the apparatus on a network (see para. 28, connectivity reports) an access router information searching part, when the mobile communication apparatus is operating in a second operating mode indicating that the source access router apparatus does not comply with a Fast Mobile IP ((see column 2 lines 55-60). Kim discloses all the subject matter but fails to mention an access router information server apparatus used with a mobile communication apparatus and source and destination access router apparatus such that when the mobile communication apparatus operates in a first operating mode,

the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure. However, Funato et al. from a similar field of endeavor disclose an access router information server apparatus used with a mobile communication apparatus and source and destination access router apparatus such that when the mobile communication apparatus operates in a first operating mode, the mobile communication apparatus sends information to the source access router apparatus for implementing a Fast Mobile IP procedure (see paragraph 59-61). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Funato et al. implementing scheme into Kim Mobile IP scheme. The method can be implemented in a proxy server. The motivation of doing this is to have the mobile node roam freely while maintaining uninterrupted access to all network resources (see paragraph 13 lines 10-13). Kim and Funato et al disclose all the subject matter but fails to mention searching for searching the access router information list for entries corresponding to a respective identifier tag included in the received request; and an access router information notifying part for notifying the requesting mobile communication apparatus of a search result. However, Leung from a similar field of endeavor disclose searching for searching the access router information list for entries corresponding to a respective identifier tag included in the received request (see column 7 lines 31-46, column 8 lines 1-29, Figure 5); and an access router information notifying part for notifying the requesting mobile communication apparatus of a search result (see column 8 lines 3-5). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Leung searching scheme into Kim

and Funato et al. mobile IP scheme. The method can be implemented in the hardware and software. The motivation of doing this is to provide a smooth handover procedure from one region to another.

**For claim 29**, Kim discloses wherein the respective identifier tag of the access router is either a lower layer address or a cell station ID (see column 8 lines 14-15).

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al. (U. S. PGPub. No. 2003/0225892 A1) in view of Funato et al. (U.S. PGPub. No. 2003/0087646) and Okajima et al. (U.S. PGPub. No. 2004/0114554).

**For claim 22**, Takusagawa et al. disclose a home agent apparatus used with a source access router apparatus (see para. 120) and a mobile communication apparatus, the mobile communication apparatus selectively operating in one of a plurality of operating modes, in a first one of the operating modes, when the mobile communication apparatus determines that the source access router apparatus complies with a Fast Mobile IP in which the source access router apparatus is configured to send a buffer notification to a destination access router apparatus for buffering data addressed to the mobile communication apparatus (see Figure 12, buffering packets corresponds to fast mobile IP compliance and para. 54 where mobile nodes communicates with the home agent for new router address refers to non-compliance): Takusagawa et al. disclose all the subject matter but fails to mention the mobile communication apparatus sends a message to the source access router apparatus to implement a Fast Mobile IP procedure. However, Funato et al. disclose the mobile

communication apparatus sends a message to the source access router apparatus to implement a Fast Mobile IP procedure (see paragraph 59-61). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Funato et al. mobile IP implementation scheme into Takusagawa et al. fast mobile IP scheme. The method can be implemented through messaging. The motivation of doing this is to discover mobile routers (see paragraph 2). Takusagawa et al. and Funato et al. disclose all the subject matter but fails to mention a buffer memory, when the mobile communication apparatus is operating in a second one of the operating modes in which the source access router apparatus is determined by mobile communication apparatus does not comply with the Fast Mobile IP, temporarily stores data addressed to the mobile communication apparatus of a management target; and a buffer management part, managing input and output to and from the buffer memory when the buffer management part receives a request, indicating that the mobile communication apparatus is operating in the second one of the operating modes, for the storing of data to be sent to the mobile communication apparatus which is received by the mobile IP/Fast Mobile IP processing part or a request for a transmission of the stored data. However, Okajima et al. from a similar field of endeavor disclose a buffer memory, when the mobile communication apparatus is operating in a second one of the operating modes in which the source access router apparatus is determined by mobile communication apparatus does not comply with the Fast Mobile IP, temporarily stores data addressed to the mobile communication apparatus of a management target (see paragraph 17); and a buffer management part, managing input and output to and from

the buffer memory when the buffer management part receives a request, indicating that the mobile communication apparatus is operating in the second one of the operating modes, for the storing of data to be sent to the mobile communication apparatus which is received by the mobile IP/Fast Mobile IP processing part or a request for a transmission of the stored data (see paragraph 19). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Okajima et al. buffering scheme into Takusagawa et al. and Funato et al. IP mobile scheme. The method can be implemented in a router. The motivation of doing this is to avoid packet loss.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al. in view of Funato et al. and Okajima et al. as applied to claim 22 above, and further in view of Shimizu et al. (U.S. PGPub. No. 2002/0045450 A1).

**For claim 23,** Takusagawa et al., Funato et al. and Okajima et al. disclose all the subject matter but fails to mention wherein the buffer management part starts to buffer data when the buffer management part receives a message requesting to start buffering from the source access router apparatus, and transmits the buffered data to the mobile communication apparatus to which the data is addressed when the buffer management part receives a message requesting to start a transmission of the buffered data from a destination access router apparatus. However, Shimizu from a similar field of endeavor disclose wherein the buffer management part starts to buffer data when the buffer management part receives a message requesting to start buffering from the source

access router apparatus, and transmits the buffered data to the mobile communication apparatus to which the data is addressed when the buffer management part receives a message requesting to start a transmission of the buffered data from a destination access router apparatus (see Figure 11, para. 53). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Shimizu et al. buffering scheme into Takusagawa et al., Dommety , Funato et al. and Leung handover scheme. The method can be implemented in a home agent device. The motivation of doing this is to avoid packet loss.

11. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al., Funato et al. and Okajima et al. as applied to claim 22 above, and further in view of Leung.

**For claim 24**, Takusagawa, Funato et al. and Okajima et al. disclose all the subject matter but fails to mention a destination access router searching part for requesting an access router information server apparatus which stores information on access router apparatus for information on a destination access router in response to an inquiry of information on the destination access router apparatus, and giving a requesting device requested information. However, Leung from a similar field of endeavor discloses a destination access router searching part for requesting an access router information server apparatus which stores information on access router apparatus for information on a destination access router in response to an inquiry of information on the destination access router apparatus, and giving a requesting device

requested information (see column 8 lines 1-4). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung searching strategy into Takusagawa et al., Funato et al., & Okajima et al. mobile IP routing and compliance scheme. The method can be implemented in the hardware and software. The motivation of doing this is to avoid packet loss and routing packet from one region to another.

**For claims 25, and 26,** Takusagawa et al., Funato et al. & Okajima et al. disclose all the subject matter but fails to mention wherein the destination access router searching part makes a request to the access router information server apparatus based on an identifier tag of the destination access router apparatus acquired when the destination access router searching part receives the request from the mobile communication apparatus. However, Leung from a similar field of endeavor discloses wherein the destination access router searching part makes a request to the access router information server apparatus based on an identifier tag of the destination access router apparatus acquired when the destination access router searching part receives the request from the mobile communication apparatus (see column 7 lines 31-46, column 8 lines 1-29, Figure 5). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung identification scheme into Takusagawa et al., Funato et al. & Okajima et al. mobile IP routing scheme. The method can be implemented in the hardware and software. The motivation of doing this is to provide an identification method for routing packet from one region to another.



**For claim 27**, Takusagawa et al., Funato et al. and Okajima et al. disclose all the subject matter but fails to mention wherein the respective identifier tag of the access router apparatus is either a lower layer address or a cell station ID. However, Leung from a similar field of endeavor discloses wherein the identifier tag of the access router apparatus is either a lower layer address or a cell station ID (See Figure 5 column 4 lines 65-67). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Leung identification scheme into Takusagawa et al., Funato et al. and Okajima et al. mobile IP routing scheme. The method can be implemented in the hardware and software. The motivation of doing this is to provide an identification method for routing packet from one region to another.

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takusagawa et al. (U. S. PGPub. No. 2003/0225892 A1) in view of Dommetry (U.S. Patent No. 7,512,088 B1) and Funato et al. (U.S. PGPub. No. 2003/0087646) as applied to claim 14 above, and further in view of Shimizu et al. (U.S. PGPub. No. 2002/0045450 A1).

**For claim 33**, Takusagawa et al., Dommetry and Funato et al. disclose all the subject matter but fails to mention a buffer node for temporarily storing data, wherein the home agent apparatus instructs the temporary storing of data transmitted to the buffer node and the transmission of that data to the designated mobile communication apparatus, and the buffering node stores received data and later forwards the data to a designated mobile communication apparatus. However,

Shimizu et al. from a similar field of endeavor disclose a buffer node for temporarily storing data, wherein the home agent apparatus instructs the temporary storing of data transmitted to the buffer node and the transmission of that data to the designated mobile communication apparatus, and the buffering node stores received data and later forwards the data to a designated mobile communication apparatus see Figure 11, para. 53). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Shimizu et al. buffering scheme into Takusagawa et al., Dommety , Funato et al. and Leung handover scheme. The method can be implemented in a home agent device. The motivation of doing this is to avoid packet loss.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD ANWAR whose telephone number is (571)270-5641. The examiner can normally be reached on Monday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick W. Ferris can be reached on 571-272-3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MOHAMMAD ANWAR  
Examiner  
Art Unit 2463

/M. A./  
Examiner, Art Unit 2463  
/Derrick W Ferris/

Application/Control Number: 10/565,859

Page 27

Art Unit: 2463

Supervisory Patent Examiner, Art Unit 2463